REMARKS/ARGUMENTS

Claim 1 was rejected under 35 U.S.C. §103 as being unpatentable over Marrast in view of Arfaei. Applicant respectfully disagrees.

Cementing well casings in subterranean wells are well-known methods, disclosed for instance in Marrast. It is further known to the one-skilled in this art that the setting time of the cement may be adjusted by incorporating compounds for accelerating or delaying the cement setting. Marrast further teaches that cementing well casings presents specific challenges such as preventing gas diffusion through the cement.
This gas diffusion occurs during a relatively short period of time of the cement setting, once the cement slurry no longer maintains a hydrostatic pressure due to the height of the cement slurry column and is not yet completely set and gas-tight.
Note that during the same period where the cement cannot prevent gas migration, it is also ill-suited for preventing water infiltrations as it can be the case in shallow waters.

Marrast proposes to remedy to the problems of gas migration by foaming the cement and thereby creating a foam barrier to the gas. Marrast further teaches a method of foaming the cement that does not impact its setting, and is compatible with known setting-accelerators.

Marrast does not teach any specific setting-accelerators nor does it teach any additive to modify the setting profile of the cement.

Arfaei et al. relates to set-accelerators for pastes, mortars and concrete compositions. The referred application is clearly the building construction industry or civil engineering. There is no mention of well cementing

Though the art of well cementing shares common grounds with the art of civil engineering construction, nor is the application in any way analogous to that of well cementing so that a person skilled in the art would consider the teaching to be in an analogous field. In particular, pastes, mortars and concretes cannot be used in well

cementing since they are not pumpable. Arfaei makes no reference to the specifications for well cementing established by the API (American Petroleum Institute) indeed because the conditions to which Portland cement is exposed in wells differ radically from those experienced in construction industry.

Moreover, Table 1 of the present patent application shows that additives C and D, that are like additive B commercial set-accelerators developed for the construction industry, do not provide any significant strength at ambient temperature after 8 hours and therefore are not suitable for well cementing. This shows that a product developed for the construction industry is not necessarily suitable for the well industry.

Moreover, Arfaei is also totally silent as to the development of the consistency. As explained in the present application in relation with figure 2. Gas migration typically occurs when the cement consistency ranges between about 30/40 and 100BC. A set-accelerator reduces the time required for the consistency to increase from about 20 to about 100 BC. Therefore an additive that is effective as set-accelerator but that promptly increases the cement consistency above 30/40BC will not be suitable from a gas migration point of view. Figure 2 shows that the compositions of the invention have a remarkable "right-angle" profile, that is totally unexpected from the teaching of Arfaei and particularly suitable for the well cementing application.

To conclude, Arfaei fails to teach that its cement set-accelerating admixtures could be suitable for well cementing and further fails to teach any properties that would let one skilled in the art of well cementing believe that said cement set-accelerating admixtures could be suitable for well cementing and in particular, effective for wells with gas migration and/or water infiltration problems.

Applicants submit that this response addresses all of the issues raised in the official action respectfully request reconsideration and that a timely Notice of Allowance be issued in this case.

It is believed that no fee is due for this submission. However should a fee be due, the Commissioner is authorized to charge or credit any necessary fee to Deposit Account No. 04-1579(56.0615).

Respectfully submitted,

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